



# AUTOSHIP

Autonomous Shipping Initiative for European Waters



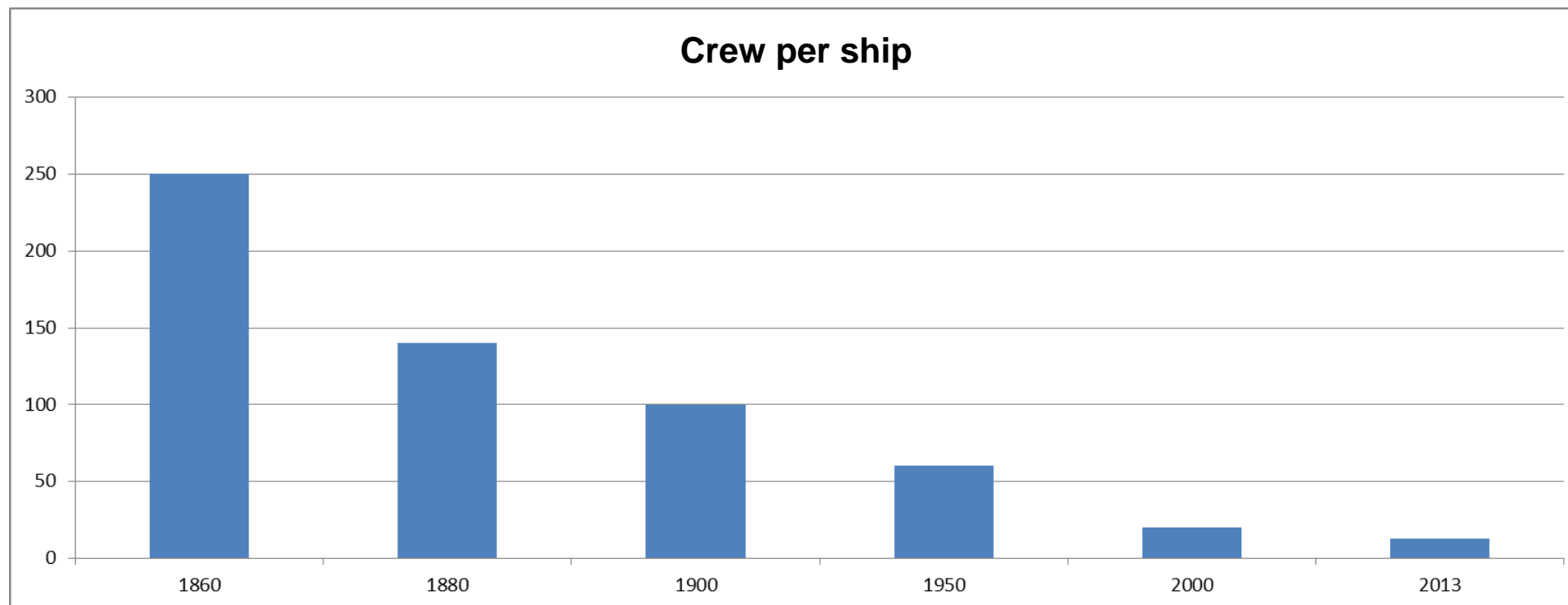
## AUTOSHIP: Demonstrating autonomous ships in Europe

Ørnulf Jan Rødseth, SINTEF Ocean  
[OrnulfJan.Rodseth@sintef.no](mailto:OrnulfJan.Rodseth@sintef.no)

# Why autonomous ships?



# Crew number is steadily decreasing.



# Automate where dull, dirty or dangerous: 3D



**Dirty: Cargo handling**



**Dull: Slow steaming over long distances**



**Dangerous: Mostly occupational hazards, but also ship accidents**



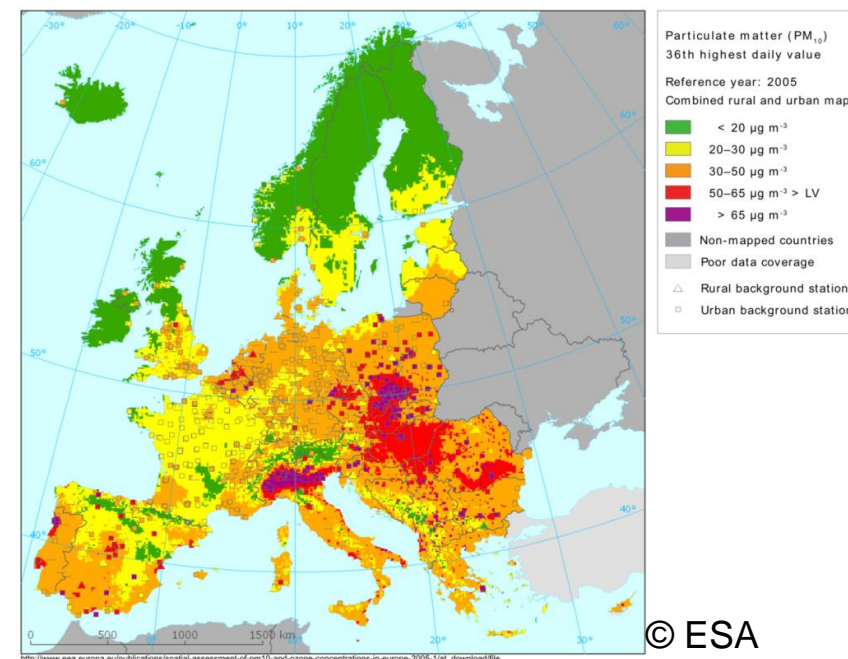
# Cargo from road to waterways



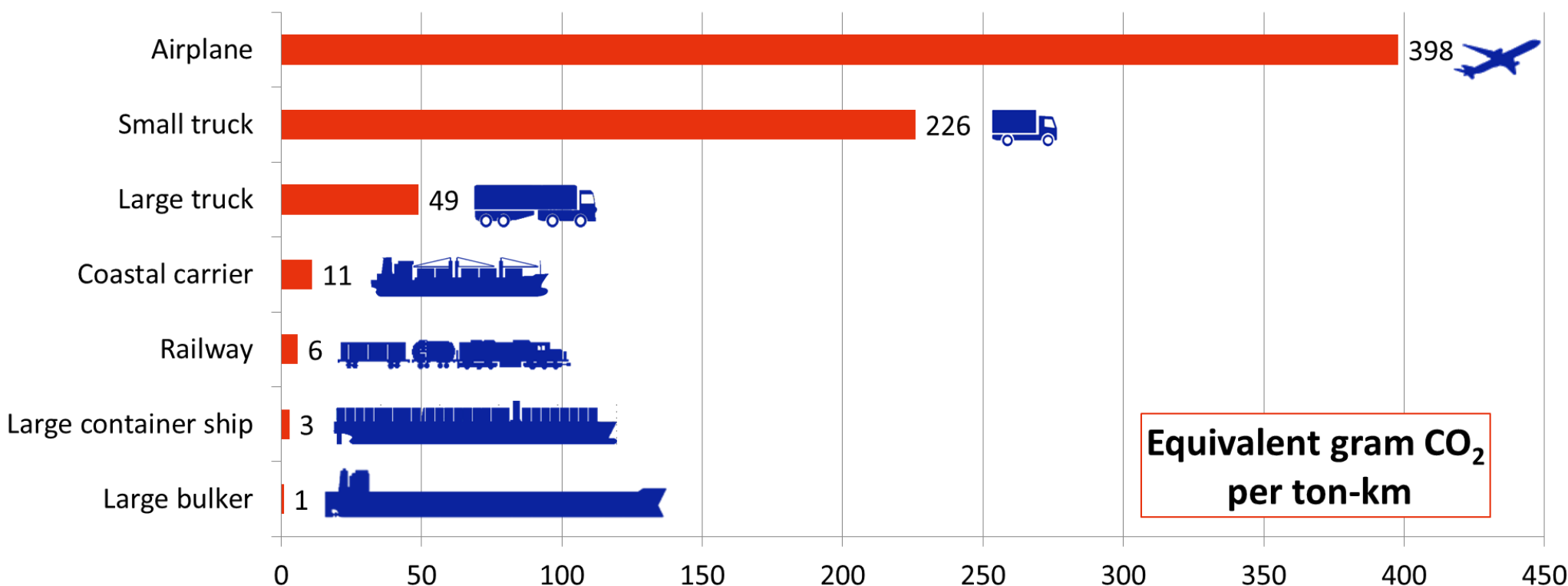
Reduce congestion and investments

Reduce noise

Reduce emissions, dust and particulate matter



# Ships represent the sustainable lifeblood of the world

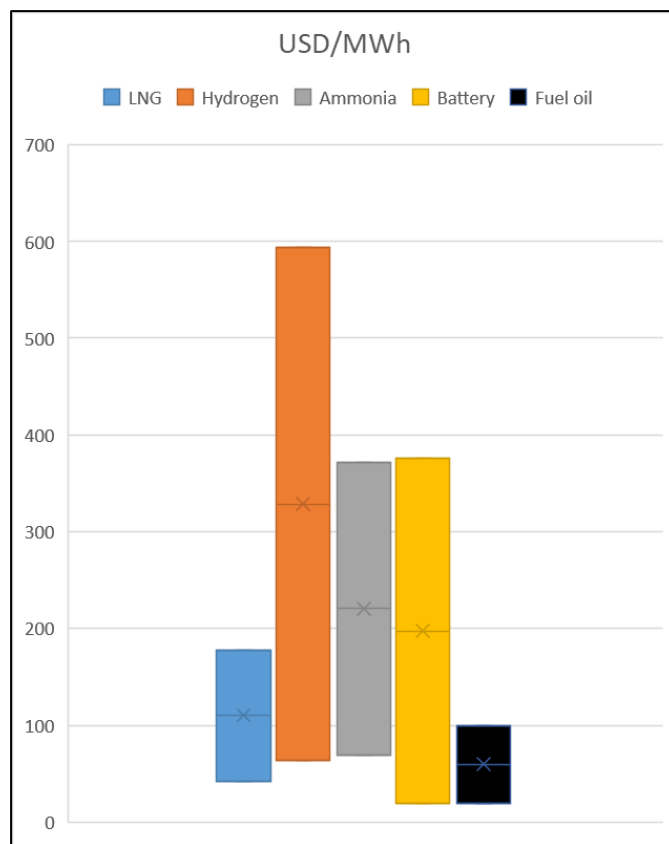


Sources: IMO 2<sup>nd</sup> GHG Study, Maersk, Intertanko

**Equivalent gram CO<sub>2</sub>  
per ton-km**

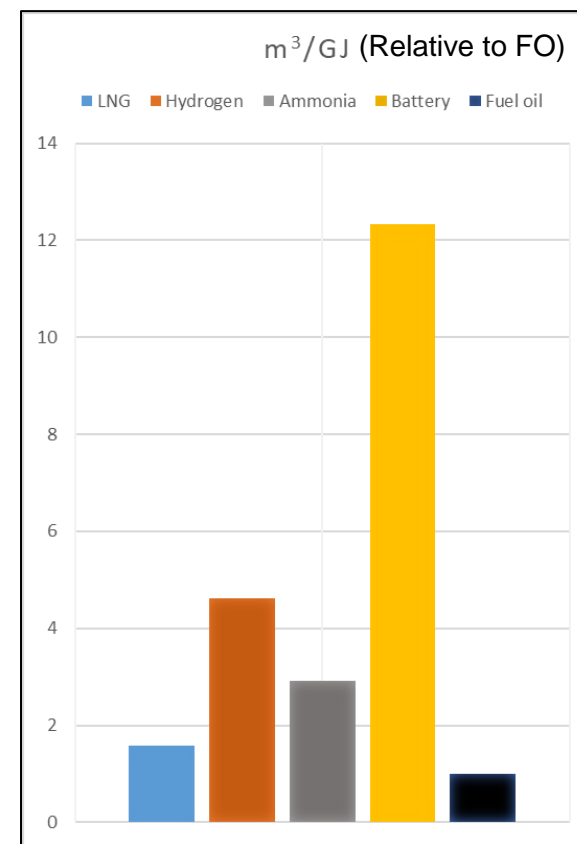


# ... but must still meet climate goals



## Cost of Energy

DNV GL: Comparison of  
Alternative Marine Fuels  
SEALNG Ltd



## Volume of Energy

IRENA: Navigating the Way  
to a Renewable Future:  
Solutions to Decarbonise  
Shipping

# Autonomous ships provide new opportunities

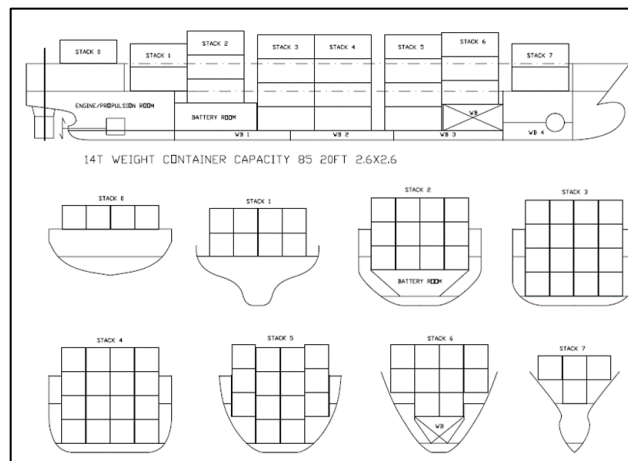


No accommodation

More cargo

Less energy

New designs



... but still with crew on land



New transport systems



Smaller and more flexible



# Why AUTOSHIP?



# There are obstacles!

**Risks may be perceived as too high for investments.**



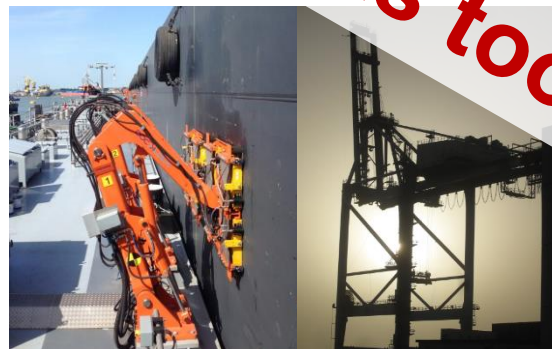
More expensive sensors and control system – cyber security



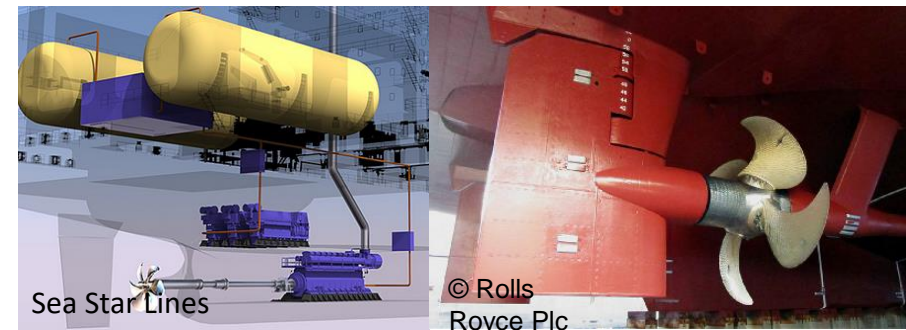
Continuously manned shore control centre



Unclear risk picture and higher safety requirements



More and automated shore infrastructure

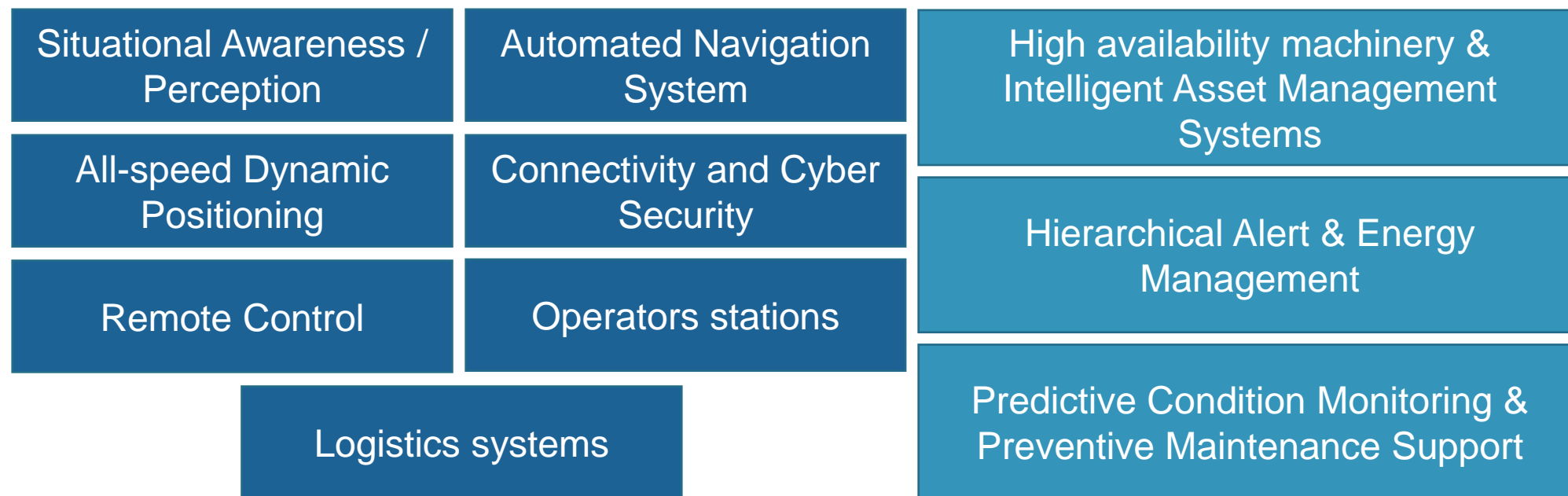


No crew onboard: No HFO, more redundancy, more costly maintenance



Long time for international legislation is in place.

# AUTOSHIP will develop Key Enabling Technologies to TRL 7




**"Artificial Captain"**



**"Artificial Chief Engineer"**

... and demonstrate on  
two real world use cases





# Inland Waterways – Pallet Shuttle Barge



Demonstration in Belgium, but with a view to other jurisdictions.

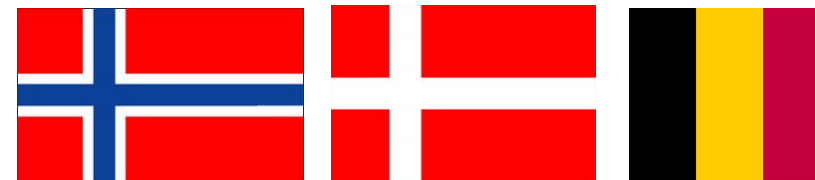
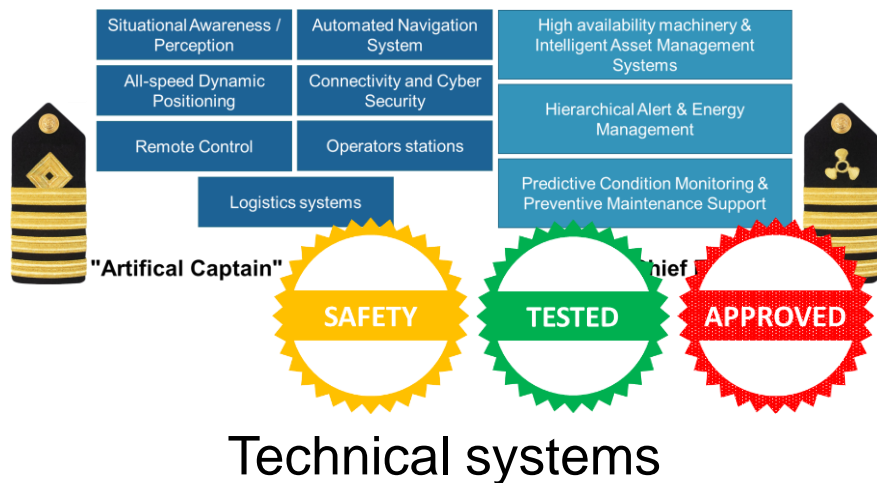
# Short Sea Shipping – Fish Feed Carrier



This case will also be prepared for ship transit to Denmark (International)



# ... including proof of concept



National approval for operations



Cost-benefit analysis

# Partners and Funding

Total Budget **EUR 29,5M**

EU Funding **EUR 20,1M**

[www.autoship-project.eu](http://www.autoship-project.eu)



The project has received funding from the European Union's Horizon 2020 research and innovation program under Grant Agreement N°815012.



# More information



<https://www.autoship-project.eu/>

